

AMENDMENTS TO THE CLAIMS

The following claims replace all previous versions and listings of claims in the present patent application.

Listing of Claims

Claims 1-9 (cancelled)

10. (currently amended) A system, comprising:
a submersible actuator, comprising:
a first housing having an electric motor disposed in a first pressurized fluid, wherein the first pressurized fluid is a pressurized lubricating liquid; and
a second housing having a control circuit disposed in a second pressurized fluid, wherein the second housing is hermetically sealed, wherein the second pressurized fluid is nitrogen, and wherein the control circuit is coupled to the electric motor, and the control circuit is configured to communicate with a remote control station.

11. (cancelled)

12. (previously presented) The system of claim 10, wherein the submersible actuator comprises another electric motor coupled to the control circuit, and the control circuit is configured to control the electric motors independent from one another.

13. (previously presented) The system of claim 12, wherein the electric motors are independently drivingly coupled to a drive shaft via a transmission, wherein the transmission comprises a transmission shaft, a worm screw coupled to the transmission shaft, and a sprocket

coupled to the worm screw and the drive shaft, wherein the electric motors are coupled to the transmission shaft.

14. (previously presented) The system of claim 10, wherein the control circuit is configured to compare a value of a control signal with an average of a predetermined number of previous control signals.

15. (previously presented) The system of claim 10, comprising a membrane accumulator coupled to the submersible actuator and configured to balance internal and external pressures.

16. (previously presented) The system of claim 10, wherein the control circuit is configured to control the electric motor based on feedback indicative of a current absorbed by the electric motor.

17. (cancelled)

18. (previously presented) The system of claim 10, comprising a flow control mechanism coupled to the submersible actuator.

19. (previously presented) The system of claim 10, wherein the control circuit is configured to control a speed value and a direction for rotation of the electric motor based on a target shaft position and a current shaft position sensed by a position sensor.

20. (currently amended) A method, comprising:
pneumatically pressurizing a control circuit in a first enclosure portion of a submersible actuator, wherein the first enclosure portion is hermetically sealed, and wherein pneumatically pressurizing comprises inertly pressurizing the control circuit in the first enclosure portion with pressurized nitrogen; and

hydraulically pressurizing at least one electric motor in a second enclosure portion of the submersible actuator, wherein the control circuit is coupled to the at least one electric motor.

21. (previously presented) The method of claim 20, comprising receiving an electrical control signal from a remote control station, processing the electrical control signal in the control circuit, and triggering the electric motor to actuate a submerged flow control mechanism.

22. (previously presented) The method of claim 20, wherein the at least one electric motor comprises first and second electric motors, and the method further comprises independently controlling the first and second electric motors to enable independent actuation of a submerged flow control mechanism.

23. (cancelled)

24. (previously presented) The method of claim 20, comprising controlling the submersible actuator based on a target position, feedback, and historical data associated with the submersible actuator.

25. (previously presented) The method of claim 20, comprising controlling a speed value and a direction for rotation of the at least one electric motor based on a target shaft position and a current shaft position sensed by a position sensor.

26. (previously presented) The method of claim 20, comprising controlling the submersible actuator based on a first feedback indicative of an actuator position and a second feedback indicative of an absorbed current.

27. (currently amended) A system, comprising:
a submersible actuator, comprising:
a first container filled with a liquid;
a second container filled with nitrogen;
an electric motor disposed in the first container; and
a control circuit disposed in the second container, wherein the second container is hermetically sealed, and wherein the control circuit is configured to control the electric motor to actuate a submarine device.
28. (previously presented) The system of claim 27, wherein the submersible actuator comprises a worm gear coupled to the electric motor.
29. (previously presented) The system of claim 27, wherein the control circuit is configured to adjust a speed of the electric motor based on a current position and a target position of the submarine device.
30. (previously presented) The system of claim 27, wherein the control circuit is configured to control the electric motor based on historical data associated with the actuation of the submarine device.
31. (previously presented) The system of claim 27, wherein the control circuit is configured to control the electric motor based on feedback indicative of a current absorbed by the electric motor.
32. (previously presented) The system of claim 27, comprising a visual recognition device and a robot interface coupled to the submersible actuator, wherein the visual recognition device enables viewing of an actuation position associated with the submarine device, and the robot interface enables a robot to control the submersible actuator.

33.-35. (cancelled)

36. (new) The system of claim 10, wherein the first and second housings are capable of withstanding pressures at up to 3,000 meters of sea depth.

37. (new) The method of claim 20, wherein the first and second enclosure portions are capable of withstanding pressures at up to 3,000 meters of sea depth.

38. (new) The system of claim 27, wherein the first and second containers are capable of withstanding pressures at up to 3,000 meters of sea depth.